

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated.

- 1 1. (Original) A method for automated management of hydrocarbon gathering, the
2 method comprising:
3 collecting data from a plurality of automated measurement and control devices
4 positioned in a hydrocarbon gathering system;
5 comparing the collected data with data stored in a database; and
6 using the data comparison to automatically schedule a test of at least one of the
7 plurality of automated measurement and control devices.
8
- 1 2. (Original) The method of claim 1, wherein the data stored in the database is
2 automatically updated with the collected data.
3
- 1 3. (Original) The method of claim 1, wherein the stored data comprises contractual
2 provisions contained in contracts between a hydrocarbon gathering company and
3 another entity.
4
- 1 4. (Original) The method of claim 3, wherein the contractual provisions comprise a
2 testing frequency for the automated measurement and control devices.
3
- 1 5. (currently amended) The method of claim 1, wherein the management collected data
2 comprises test scheduling data defined by a hydrocarbon gathering company.

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1 6. (Original) The method of claim 1, wherein the plurality of measurement and control
2 devices comprises electronic flow meters.

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1 7. (Original) The method of claim 1, wherein the plurality of automated measurement
2 and control devices comprises programmable logic controllers.

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1 8. (Original) The method of claim 1, wherein the plurality of automated measurement
2 and control devices comprises remote terminal unit.

3

1 9. (Original) The method of claim 1, wherein the plurality of automated measurement
2 and control devices comprises automated gas composition analysis devices.

3

1 10. (Original) The method of claim 1, wherein using the data comparison further
2 comprises:
3 notifying a field technician of a required test for at least one of the plurality of
4 automated measurement and control devices; and
5 automatically notifying a witness of the test after the field technician has selected
6 a test date.

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1 11. (previously presented) A method for automated management of hydrocarbon
2 gathering, the method comprising:
3 collecting data from a plurality of automated measurement and control devices

4 positioned in a hydrocarbon gathering system;
5 comparing the collected data with data stored in a database;
6 using the data comparison to automatically schedule a test of at least one of the
7 plurality of automated measurement and control devices;
8 analyzing the collected data to determine a volume of a flow of hydrocarbons
9 through at least one of the plurality of automated measurement and control
10 devices;
11 comparing the volume of the hydrocarbon flow to contractual provisions stored in
12 the database; and
13 automatically scheduling meter tests according to the stored contractual
14 provisions.

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1 12. (previously presented) The method of claim 11, further comprising:
2 automatically updating the database after testing of at least one of the plurality of
3 automated measurement and control devices.

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1 13. (Original) The method of claim 11, wherein selected field personnel are
2 automatically notified of the automatically scheduled tests.

3

1 14. (Original) The method of claim 13, wherein the automatic notification is transmitted
2 electronically.

3

1 15. (Original) The method of claim 11, wherein a witness is automatically notified of the
2 automatically scheduled tests.

3

1 16. (Original) The method of claim 15, wherein the automatic notification is transmitted
2 electronically.

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1 17. (previously presented) The method of claim 11, further comprising:
2 testing at least one of the plurality of automated measurement and control devices;
3 automatically comparing test data with master testing data stored in the database;
4 and
5 generating an alarm if a variance between the new testing data and the master
6 testing data exceeds a selected threshold.

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1 18. (previously presented) The method of claim 11, further comprising:
2 automatically measuring electrical current flow in at least one cathodic protection
3 system positioned in the hydrocarbon gathering system; and
4 generating an alarm if the automatically measured electrical current flow exceeds
5 a selected threshold.

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1 19. (previously presented) The method of claim 11, wherein a computer system
2 connected to the database automatically generates an alarm when a selected event
3 is detected.

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1 20. (Original) The method of claim 19, wherein the selected event comprises detection of
2 non-conforming test data collected from at least one of the plurality of automated
3 measurement and control devices.

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1 21. (Original) The method of claim 19, wherein the selected event comprises detection of
2 a failure of at least one of the plurality of automated measurement and control
3 devices.

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1 22. (Original) The method of claim 19, wherein the selected event comprises detection of
2 a system imbalance beyond a selected threshold.

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1 23. (Original) The method of claim 19, wherein the selected event comprises detection of
2 a change in natural gas composition beyond a selected threshold.

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1 24. (currently amended) A method for automated management of a hydrocarbon gathering

2 system, the method comprising:

3 collecting well test data from at least one of a plurality of producing wells in a
4 hydrocarbon gathering system;

5 using the well test data to automatically reallocate ~~hydrocarbon production~~ a
6 ~~volume cost~~ of produced hydrocarbons to at least one of the plurality of producing
7 wells.

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1 25. (currently amended)The method of claim 24, wherein the well test data is used to
2 automatically reallocate ~~production costs~~ hydrocarbon production to at least one
3 of the plurality of producing wells.

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1 26. (Original) The method of claim 24, wherein the well test data is used to
2 automatically populate regulatory forms.

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1 27. (Original) The method of claim 24, wherein the well test data is automatically
2 reported to selected users.

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1 28. (currently amended)A method for automated management of a hydrocarbon gathering
2 system, the method comprising:
3 calculating a system balance for a selected balance envelope, said system balance
4 relating to at least one of: (i) balancing a volume of produced hydrocarbons
5 entering and leaving an element of the hydrocarbon gathering system, (ii)
6 balancing of a heating value of produced hydrocarbons entering and leaving a
7 component of a hydrocarbon gathering system, and, (iii) balancing of a natural
8 gas component balance of produced hydrocarbons entering and leaving a
9 component of a hydrocarbon gathering system;
10 collecting hydrocarbon sample test data from at least one of a plurality of
11 automated measurement and control devices positioned in a hydrocarbon
12 gathering system; and

13 using the hydrocarbon sample test data to automatically recalculate the system
14 balance.

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1 29. (Original) The method of claim 28, further comprising:
2 using the recalculated system balance to mix hydrocarbon products from at least
3 two gathering pipelines to produce a desired hydrocarbon flow composition.

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1 30. (Original) The method of claim 29, wherein the desired hydrocarbon flow
2 composition is selected to minimize hydrocarbon processing costs.

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1 31. (Original) The method of claim 28, wherein the plurality of measurement and control
2 devices comprises electronic flow meters.

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1 32. (Original) The method of claim 28, wherein the plurality of automated measurement
2 and control devices comprises programmable logic controllers.

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1 33. (Original) The method of claim 28, wherein the plurality of automated measurement
2 and control devices comprises remote terminal units.

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1 34. (Original) The method of claim 28, wherein the plurality of automated measurement
2 and control devices comprises automated gas composition analysis devices.

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1 35. (Original) The method of claim 28, wherein a database is automatically updated after
2 recalculation of the system balance.

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1 36. Canceled

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1 37. Canceled.

2

1 38. (Original) The method of claim 28, wherein the system balance comprises a natural
2 gas component balance.

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1 39. (Original) The method of claim 28, wherein the balance envelope comprises a
2 combination of user defined selected ones of the plurality of automated
3 measurement and control devices.

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1 40. (currently amended) A method for automated management of a hydrocarbon
2 gathering system, the method comprising:
3 calculating a system balance for a selected balance envelope, said system balance
4 relating to at least one of: (i) balancing a volume of produced hydrocarbons
5 entering and leaving a component of the hydrocarbon gathering system, (ii)
6 balancing a heating value of produced hydrocarbons entering and leaving a
7 component of the hydrocarbon gathering system, and, (iii) balancing a natural gas
8 component balance of produced hydrocarbons entering and leaving a component
9 of the hydrocarbon gathering system;

10 testing at least one of a plurality of automated measurement and control devices
11 positioned in a hydrocarbon gathering system; and
12 using the test data to automatically recalculate the system balance.

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1 41. (Original) The method of claim 40, wherein the plurality of measurement and control
2 devices comprises electronic flow meters.

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1 42. (Original) The method of claim 40, wherein the plurality of automated measurement
2 and control devices comprises programmable logic controllers.

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1 43. (Original) The method of claim 40, wherein the plurality of automated measurement
2 and control devices comprises remote terminal units.

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1 44. (Original) The method of claim 40, wherein the plurality of automated measurement
2 and control devices comprises automated gas composition analysis devices.

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1 45. (currently amended) A method for automated management of a hydrocarbon gathering
2 system, the method comprising:

3 calculating a composition of a flow of produced hydrocarbons in a hydrocarbon
4 gathering system;

5 collecting hydrocarbon sample test data from a plurality of automated
6 measurement and control devices positioned in the hydrocarbon gathering system;
7 and

8 using the hydrocarbon sample test data to automatically recalculate the
9 composition of hydrocarbon flow in the hydrocarbon gathering system.

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1 46. (Original) The method of claim 45, wherein the plurality of measurement and control
2 devices comprises electronic flow meters.

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1 47. (Original) The method of claim 45, wherein the plurality of automated measurement
2 and control devices comprises programmable logic controllers.

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1 48. (Original) The method of claim 45, wherein the plurality of automated measurement
2 and control devices comprises remote terminal units.

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1 49. (Original) The method of claim 45, wherein the plurality of automated measurement
2 and control devices comprises automated gas composition analysis devices.

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1 50. (Original) The method of claim 45, further comprising:
2 automatically updating a database after recalculation of the hydrocarbon flow
3 composition.

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1 51. (Original) The method of claim 1, wherein the collected data and data stored in the
2 database are used to model pipeline hydraulics.

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1 52. (Original) The method of claim 1, further comprising:

2 using the collected data and data stored in the database to automatically generate a
3 report for a selected unit of a hydrocarbon gathering system.

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1 53. (Original) The method of claim 1, wherein the collected data and data stored in the
2 database are used to evaluate reservoir production.